

ABSTRACT

A Schottky photodiode includes a semiconductor layer and a conductive film provided in contact with the semiconductor layer. The conductive film has an aperture and a periodic structure provided around said aperture for
5 producing a resonant state by an excited surface plasmon in a film surface of the conductive film by means of the incident light to the film surface. The photodiode detects near-field light that is generated by at the interface between the conductive film and semiconductor layer the excited surface plasmon. The aperture has a diameter smaller than the wavelength of the incident light.